

Mount Pleasant Waterworks Groundwater Withdrawal Permit Request and Application

On July 31, 2018, the South Carolina Department of Health and Environmental Control (DHEC) received an application from Mount Pleasant Waterworks (MPW) for a renewal of their groundwater withdrawal permit under the Groundwater Use and Reporting Act (R.61.113).

The current approved permit limit for groundwater withdrawal by the company is 3,953 million gallons per year (MGY). The company requested a permit limit that was unchanged. DHEC has proposed a new permit limit of 1,679 MGY.

DHEC's Role

Under the state's Groundwater Use and Reporting Act, groundwater users who are in designated capacity use areas of the Coastal Plain are required to request a permit from DHEC to construct and/or operate any well, or system of wells, which will use **over 3 million gallons in any one month**. DHEC reviews groundwater withdrawal permit requests to assess a permit's potential impact on the surrounding users as well as potential to have adverse effects on the resources. Decisions are made based on the best available scientific data. **Permits for use are subject to review and renewal every 5 years, at which time the permit will be reevaluated.**

Proposed Water Use

Mount Pleasant Waterworks (MPW) operates 6 wells to supply drinking water to the population of Mt. Pleasant, South Carolina for a population between 80,000 and 90,000. In addition, MPW purchases surface water from Charleston Water System.

Historic Annual Water Use in Millions of Gallons (MG):

2009	1,097.16	2013	970.61	2017	1,559.31
2010	1,172.05	2014	1,233.8	2018	1,370.61
2011	1,196.1	2015	1,413.05		
2012	1,221.4	2016	1,700.04		

Why is DHEC Proposing a Reduction in the Permit Limit?

A significant cone of depression (pumping cone) has developed in the Charleston Aquifer (Middendorf Aquifer System) below the city of Mount Pleasant. The Charleston Aquifer has been overdeveloped. The earliest indications of the extent of this feature were apparent in the water level map of the Middendorf Aquifer System produced by SC Department of Natural Resources in 2001. The most recent water level map of the Charleston Aquifer was produced in 2016. The center of the cone of depression was just over 100 feet below mean sea level at that time, and the influence of this feature extends within the aquifer beyond the Mount Pleasant area.

The U.S. Geological Survey produced a groundwater model that was published in 2017 at the request of MPWⁱ. The simulation results suggest that water level at the center of the cone of depression would lower to approximately 405 feet below mean sea level—a reduction in the water level of more than 300 feet over the 2016 water level measurements if MPW pumped at their existing permit threshold. This is a significant impact on the already stressed Charleston Aquifer below Mount Pleasant.

Over the prior 10 years, the highest annual amount of groundwater withdrawn by MPW **was only 43% of their 2014 – 2018 permit limit**. The draft permit limit is 1,679 MGY. **In the event of an emergency**

interruption of service from Charleston Water System, MPW is allowed to withdraw the volume of water needed to meet any shortfall.

During the current permit cycle, MPW will be required to pursue alternate surface water sources for their water supply needs and encouraged to locate any new wells away from the center of the existing cone of depression.

Next Steps

The department issued a draft permit on August 22 and sent the draft to the Trident Technical Advisory Committee (TAC). A meeting is currently in the process of being scheduled. The department will present the permit to the TAC concerning the draft permit's adherence the Trident Groundwater Management Plan.

ⁱ Fine, J.M., Petkewich, M.D., and Campbell, B.G., 2017, Simulation of groundwater flow and pumping scenarios for 1900 – 2050 near Mount Pleasant, South Carolina (ver. 1.1, November 6, 2017): U.S. Geological Survey Scientific Investigations Report 2017-5128, 36 p., <https://doi.org/10.3133/sir20175128>.